Implementation Science From Practice to Research

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FOX CHASE CANCER CENTER
TEMPLE HEALTH

Today's Talk

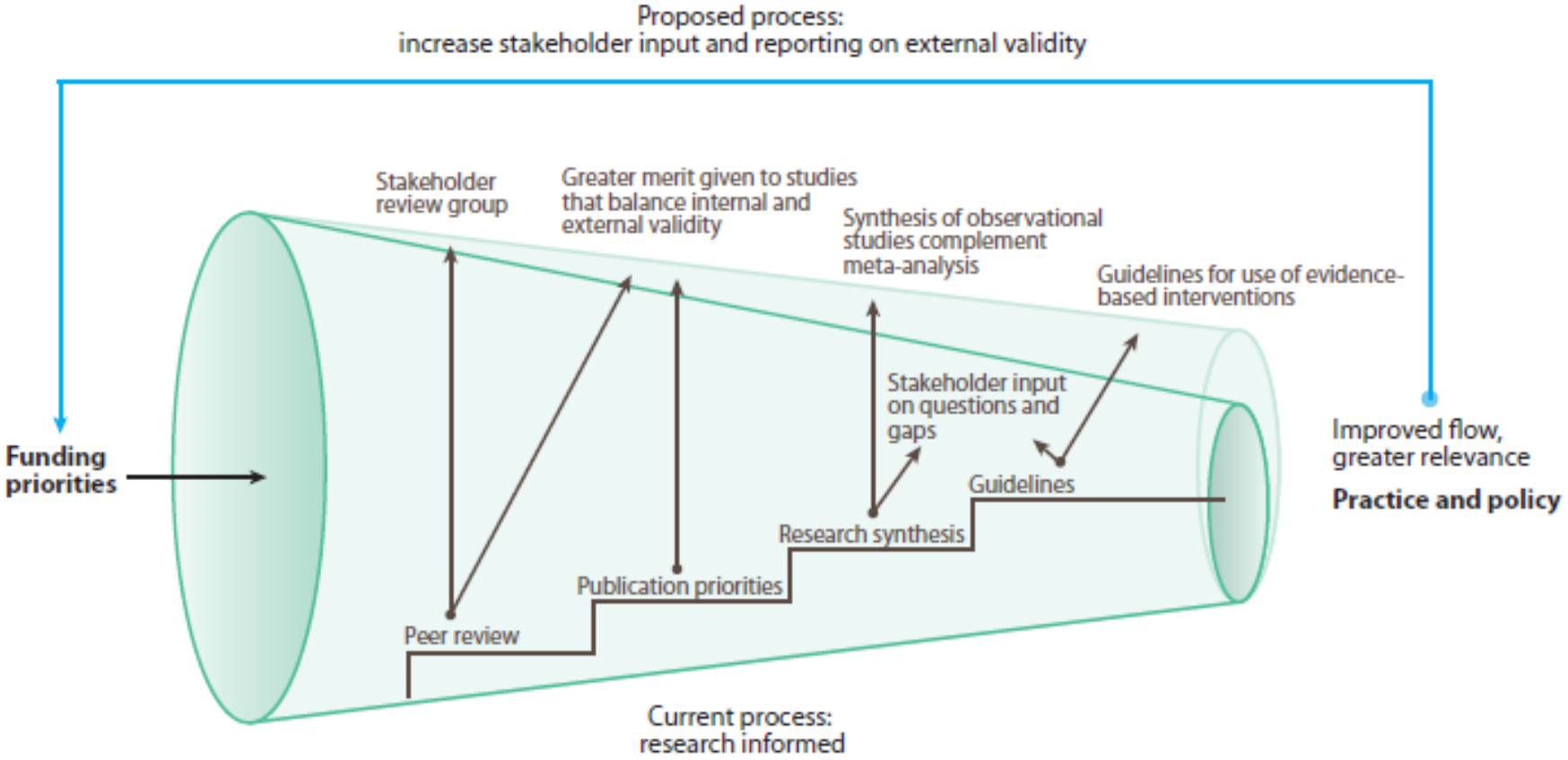
Story of Dissemination & Implementation
- What's the problem and strategies?
- What's the opportunity?

Case examples
- Dissemination Research – PA Dissemination of Body and Soul
- Implementation Practice -- RCaDES – PASAC adaptation
- Implementation Science – iAPP & mychoice

What is happening in this emerging area?
- Training
- Organizations
- Implementation Science Journal
- Resources


THE LATEST RESEARCH SHOWS THAT
WE REALLY SHOULD DO SOMETHING
WITH ALL THIS RESEARCH

Improving the flow and relevance of research evidence for implementation

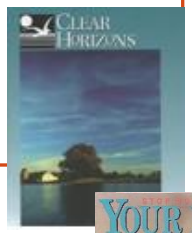


R Lobb, GA Colditz. Implementation science and its application to population health. *Annu Rev Public Health*. 2013;34:235–251

Dissemination & Implementation Evolution

EBM

Investigator Driven



CancerControl PLANET

Plan, Link, Act, Network with Evidence-based Tools

NCI Dissemination Supplements

NIH-Transdisciplinary PAR

Fleisher, 2017

What is…..

Dissemination

Dissemination Research

Implementation Practice

Implementation Science Research

Definitions

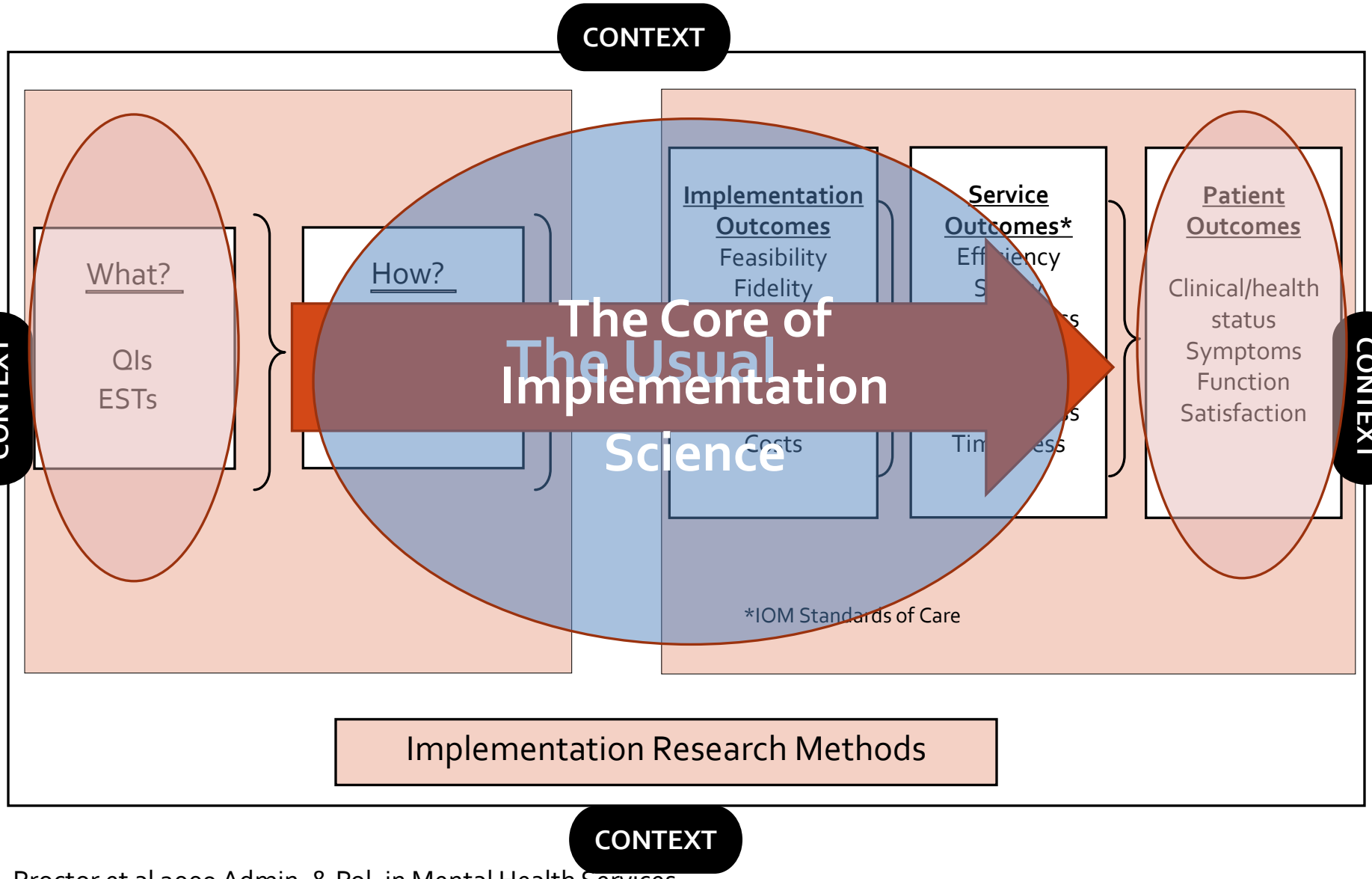
Dissemination – the purposive distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to spread information and the associated evidence-based interventions.

Dissemination Research-- addresses how information about health promotion and care interventions is created, packaged, transmitted, and interpreted among a variety of important stakeholder groups.

Implementation Practice…is a specified set of activities designed to put into practice an activity or programs. Implementation processes are purposeful and are described in sufficient detail .

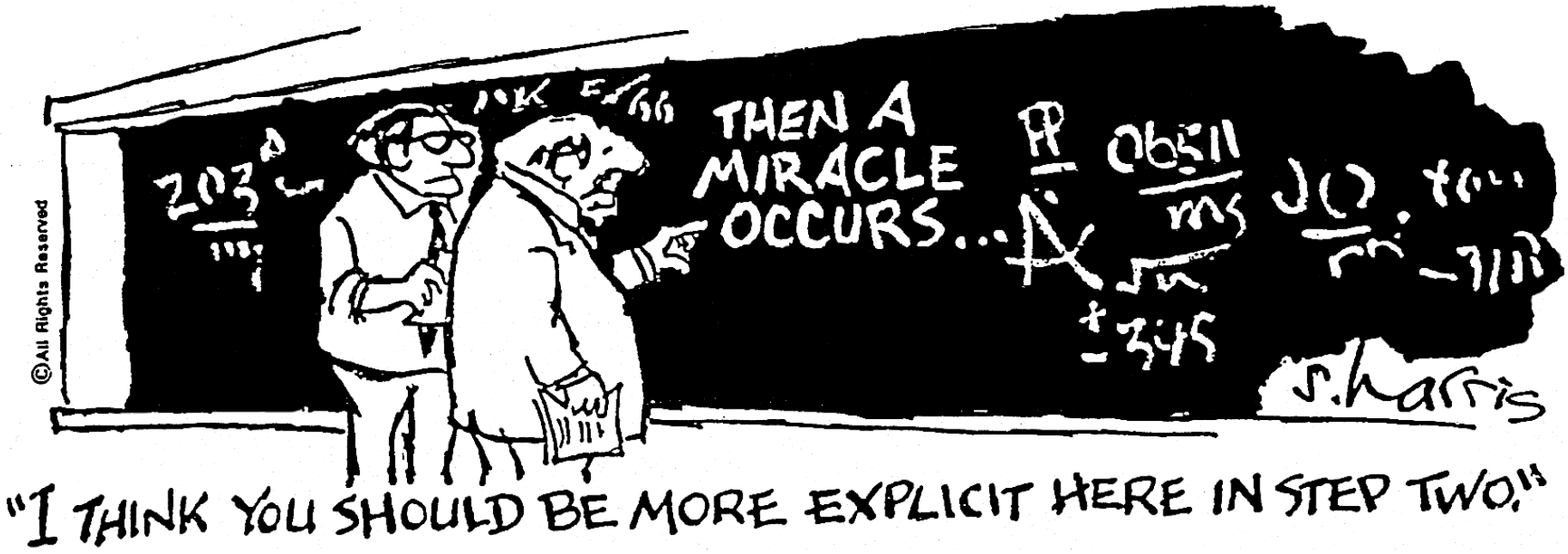
Implementation Science Research…is the study of factors that influence the full and effective use of innovations in practice. The goal is not to answer factual questions about what is, but rather to determine what is required.

Conceptual Model for Implementation Research



Proctor et al 2009 Admin. & Pol. in Mental Health Services

Unraveling the “Black Box”
Moving from passive to active D&I



Published in final edited form as:
Am J Prev Med. 2012 September ; 43(3): 337–350. doi:10.1016/j.amepre.2012.05.024.

Bridging Research and Practice:

Models for Dissemination and Implementation Research

Rachel G. Tabak, PhD, Elaine C. Khoong, BS, David Chambers, DPhil, and **Ross C. Brownson, PhD**
Prevention Research Center in St. Louis, Brown School, (Tabak, Khoong, Brownson), Division of Public Health Sciences and Alvin J. Siteman Cancer Center, School of Medicine, (Brownson), Washington University in St. Louis, St. Louis, Missouri; National Institute of Mental Health (Chambers), NIH, Bethesda, Maryland

Abstract

Context—Theories and frameworks (hereafter called models) enhance dissemination and implementation (D&I) research by making the spread of evidence-based interventions more likely. This work organizes and synthesizes these models by: (1) developing an inventory of models used in D&I research; (2) synthesizing this information; and (3) providing guidance on how to select a model to inform study design and execution.

Evidence acquisition—This review began with commonly cited models and model developers and used snowball sampling to collect models developed in any year from journal articles, presentations, and books. All models were analyzed and categorized in 2011 based on three author-defined variables: construct flexibility, focus on dissemination and/or implementation activities (D/I), and the socio-ecological framework (SEF) level. Five-point scales were used to rate construct flexibility from broad to operational and D/I activities from dissemination-focused to implementation-focused. All SEF levels (system, community, organization, and individual) applicable to a model were also extracted. Models that addressed policy activities were noted.

Evidence synthesis—Sixty-one models were included in this review. Each of the five categories in the construct flexibility and D/I scales had/contained at least four models. Models were distributed across all levels of the SEF; the fewest models (n=8) addressed policy activities. To assist researchers in selecting and utilizing a model throughout the research process, the authors present and explain examples of how models have been used.

Conclusions—These findings may enable researchers to better identify and select models to inform their D&I work.

Published in final edited form as:
Nurs Outlook. 2010 ; 58(6): 287–300. doi:10.1016/j.outlook.2010.07.001.

A Thematic Analysis of Theoretical Models for Translational Science in Nursing: Mapping the Field

Sandra A. Mitchell, CRNP, PhD, AOCN[1], **Cheryl A. Fisher, RN-BC, EdD**[1], **Clare E. Hastings, RN, PhD, FAAN**[1], **Leanne B. Silverman, BA**[1], and **Gwenyth R. Wallen, RN, PhD**[1]
[1]Clinical Center, National Institutes of Health, Bethesda, MD

Abstract

Background—The quantity and diversity of conceptual models in translational science may complicate rather than advance the use of theory.

Purpose—This paper offers a comparative thematic analysis of the models available to inform knowledge development, transfer, and utilization.

Method—Literature searches identified 47 models for knowledge translation. Four thematic areas emerged: (1) evidence-based practice and knowledge transformation processes; (2) strategic change to promote adoption of new knowledge; (3) knowledge exchange and synthesis for application and inquiry; (4) designing and interpreting dissemination research.

Discussion—This analysis distinguishes the contributions made by leaders and researchers at each phase in the process of discovery, development, and service delivery. It also informs the selection of models to guide activities in knowledge translation.

Conclusions—A flexible theoretical stance is essential to simultaneously develop new knowledge and accelerate the translation of that knowledge into practice behaviors and programs of care that support optimal patient outcomes.

Keywords

Translational science; evidence-based practice; knowledge translation; dissemination research; theory

From Tabak et al.

Identified 109 models

Exclusions

- 26 focus on practitioners
- 12 not applicable to local level dissemination
- 8 end of grant knowledge translation
- 2 duplicates

Included 61 models

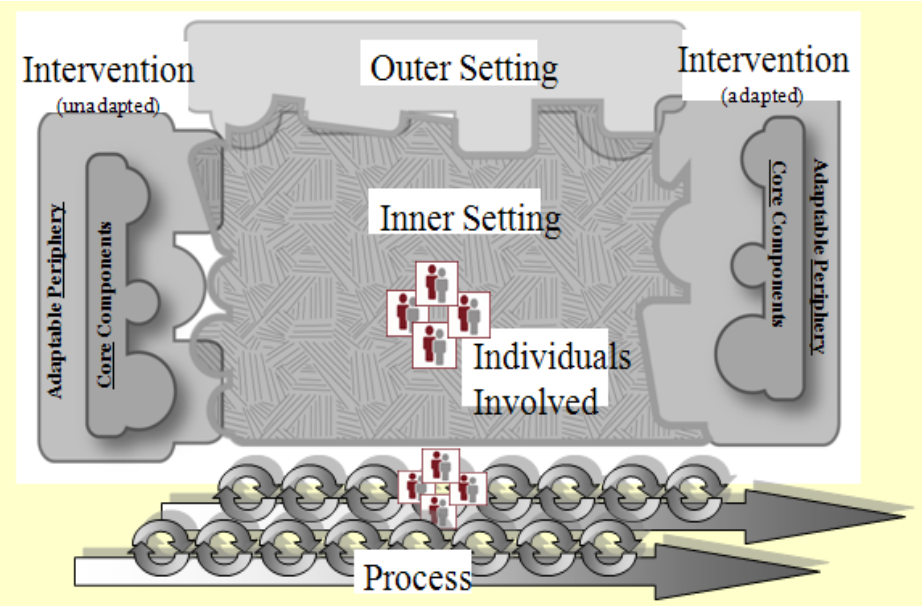
Categorization of D&I models (theories & frameworks) for use in research studies (adapted from Tabek et al.)

Diss. &/or Implem.	System	Community	Organization	Individual	Policy
D – only (n=11)	3	10	10	4	3
D > I (n=16)	5	14	16	11	2
D = I (n=17)	6	13	16	10	1
I > D (n=5)	2	4	5	3	2
I - only (n=12)	2	10	12	7	0
Total (n=61)	18	51	59	35	8

Context: Consolidated Framework for Implementation Research (CFIR)

Composed of 5 major domains:

- Intervention characteristics
- Outer setting
- Inner setting
- Characteristics of individuals involved
- Process of implementation



Damschroder L, Aron D, Keith R, Kirsh S, Alexander J, Lowery J.: Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci* 2009, 4(1):50.

RE-AIM Framework (Glasgow et al)

Element	Definition	Question
Reach	Percent and representativeness of population	Does program attract large and representative percent of population? Can program reach those with disparities?
Effectiveness	Positive and negative effects of the program	Does the program provide beneficial effects to all sub-groups and minimize negative effects?
Adoption	Percent and representativeness of setting and staff that provide program	Is the program feasible for majority of settings, including those with limited resources?
Implementation	The consistency and cost of providing the program and the scope of modifications required	Can the program be provided consistently across settings, staff, and populations and are the costs justified by the results?
Maintenance	The long-term effects for the participants and the sustainability for the setting	Does the program have lasting benefits for the population and is the program sustainable over the long-term

D&I Models: Significance

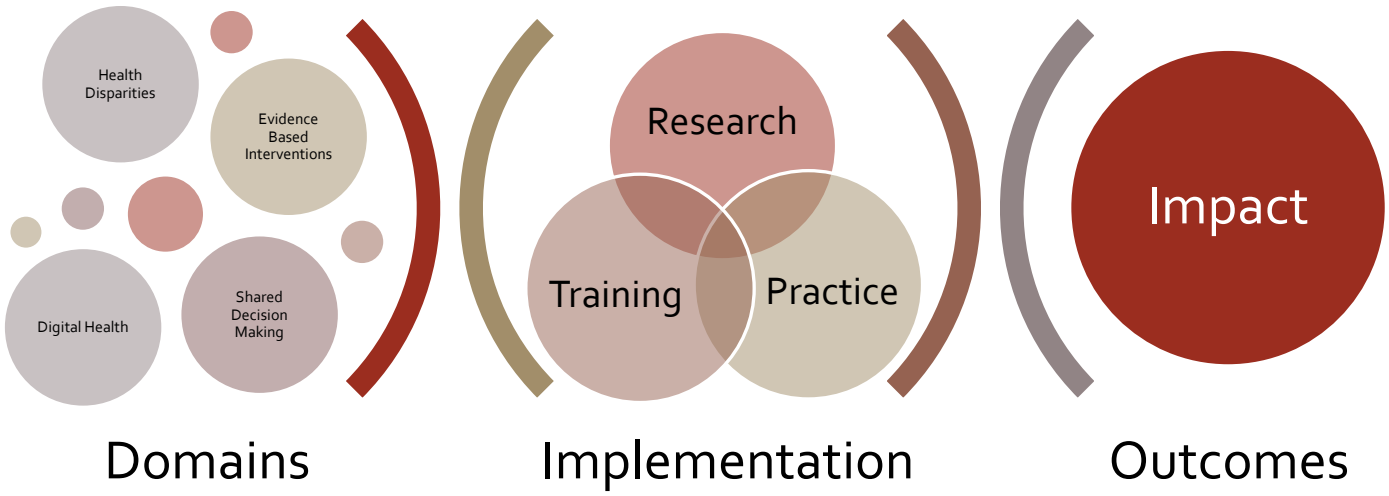
- Ensure inclusion of essential D&I strategies
- Enhance the interpretability of study findings
- Provide systematic structure for development, management and evaluation of interventions/D&I efforts
- Models suggest what is important to measure
- Provide explanation why an intervention works (or doesn't work)

Tabak RG et al, Bridging Research and Practice: Models for Dissemination and Implementation Research *Am J Prev Med*, 2012, 43: 337-350;

Context of Evidence

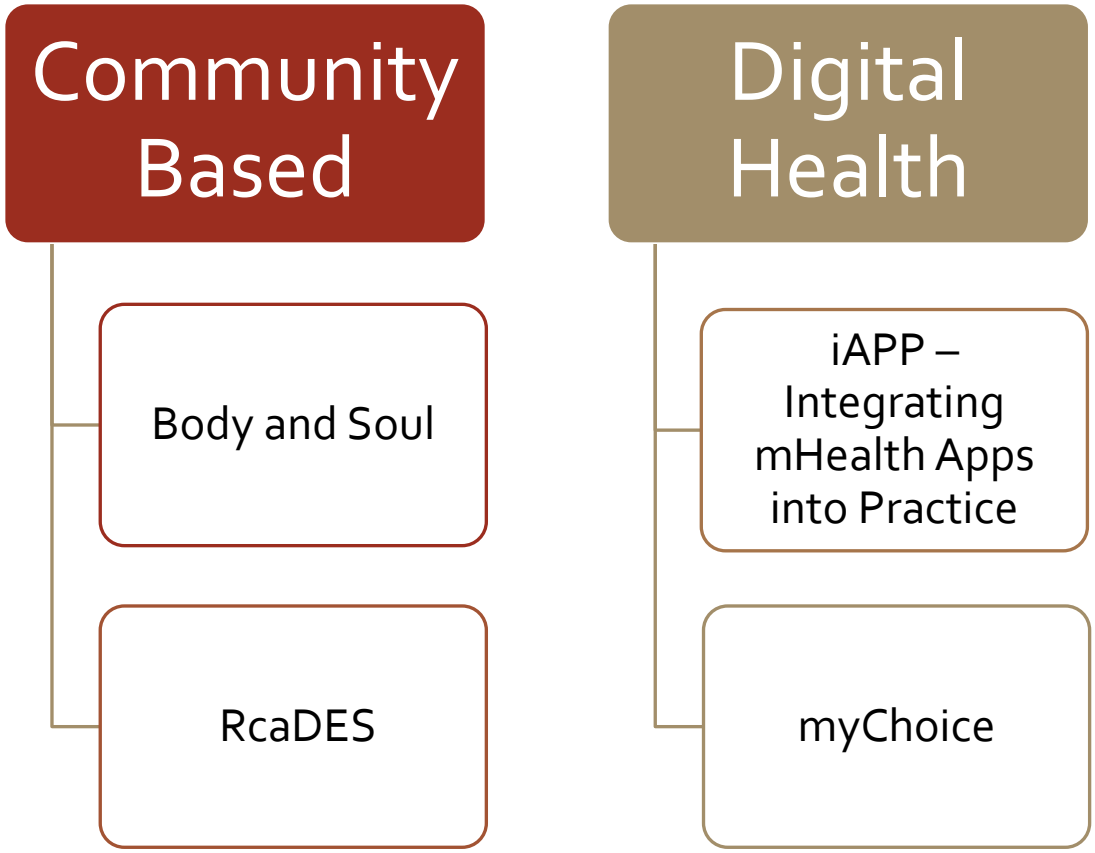
Evidence-based intervention: The objects of dissemination and implementation are interventions with proven efficacy and effectiveness.

Dissemination & Implementation Practice and Research

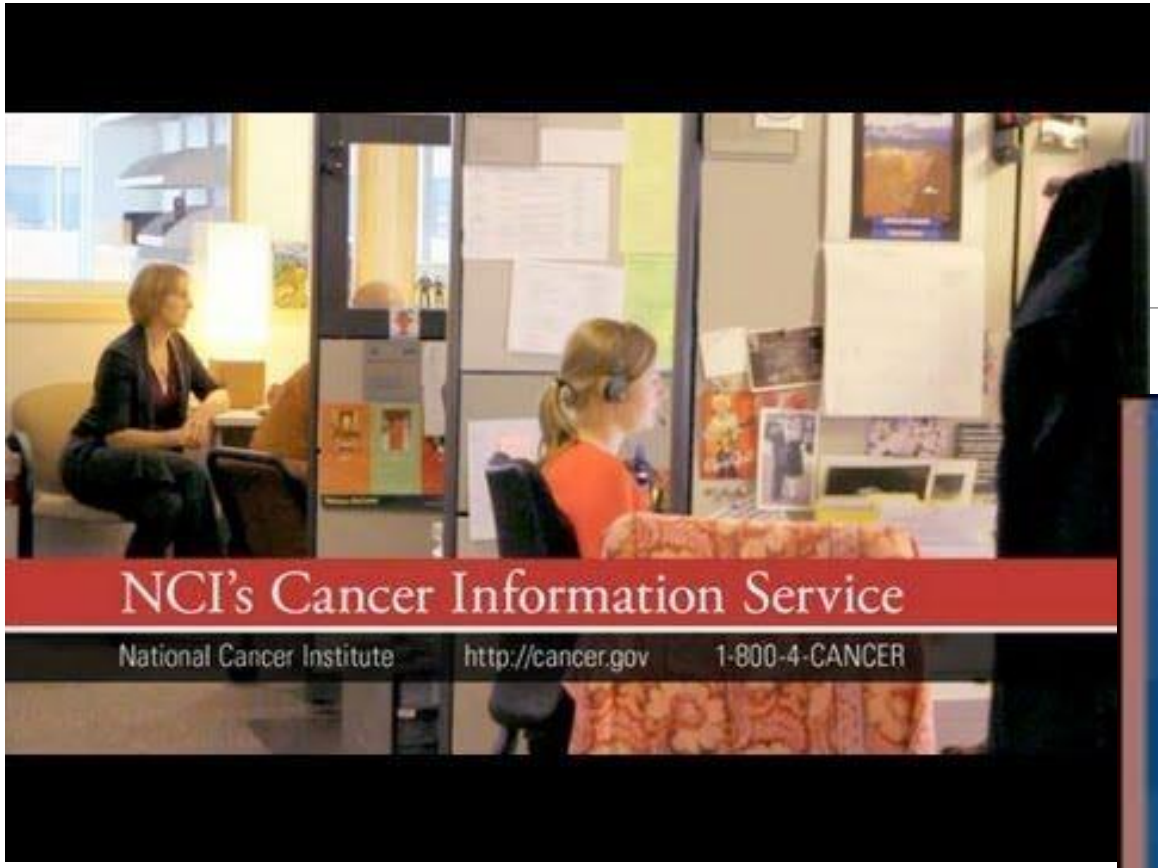


Fleisher, 2016

Selected Projects



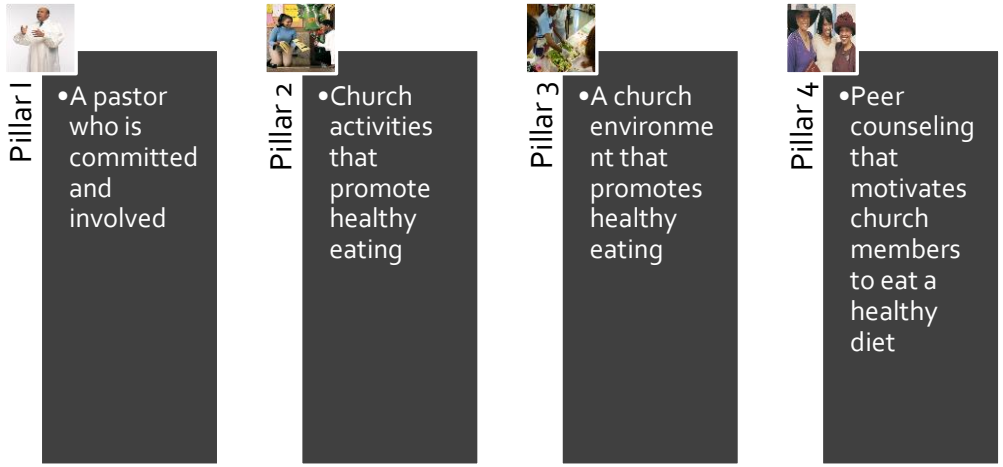
Community Based


NCI's Cancer Information Service
National Cancer Institute
http://cancer.gov
1-800-4-CANCER


HEALTH
COMMUNICATION

Background

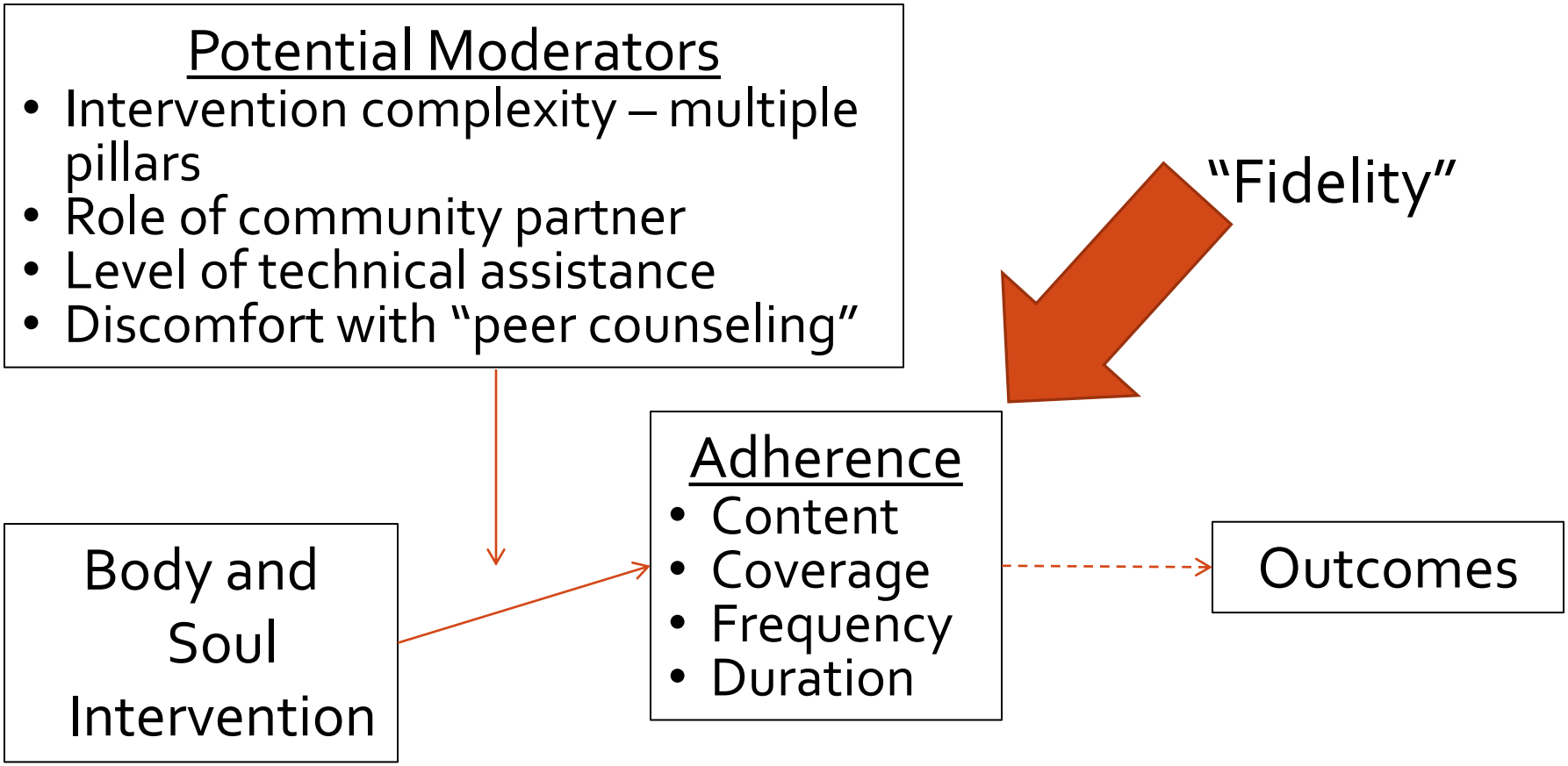
The Body & Soul program is supported by four pillars:



PA Dissemination Project

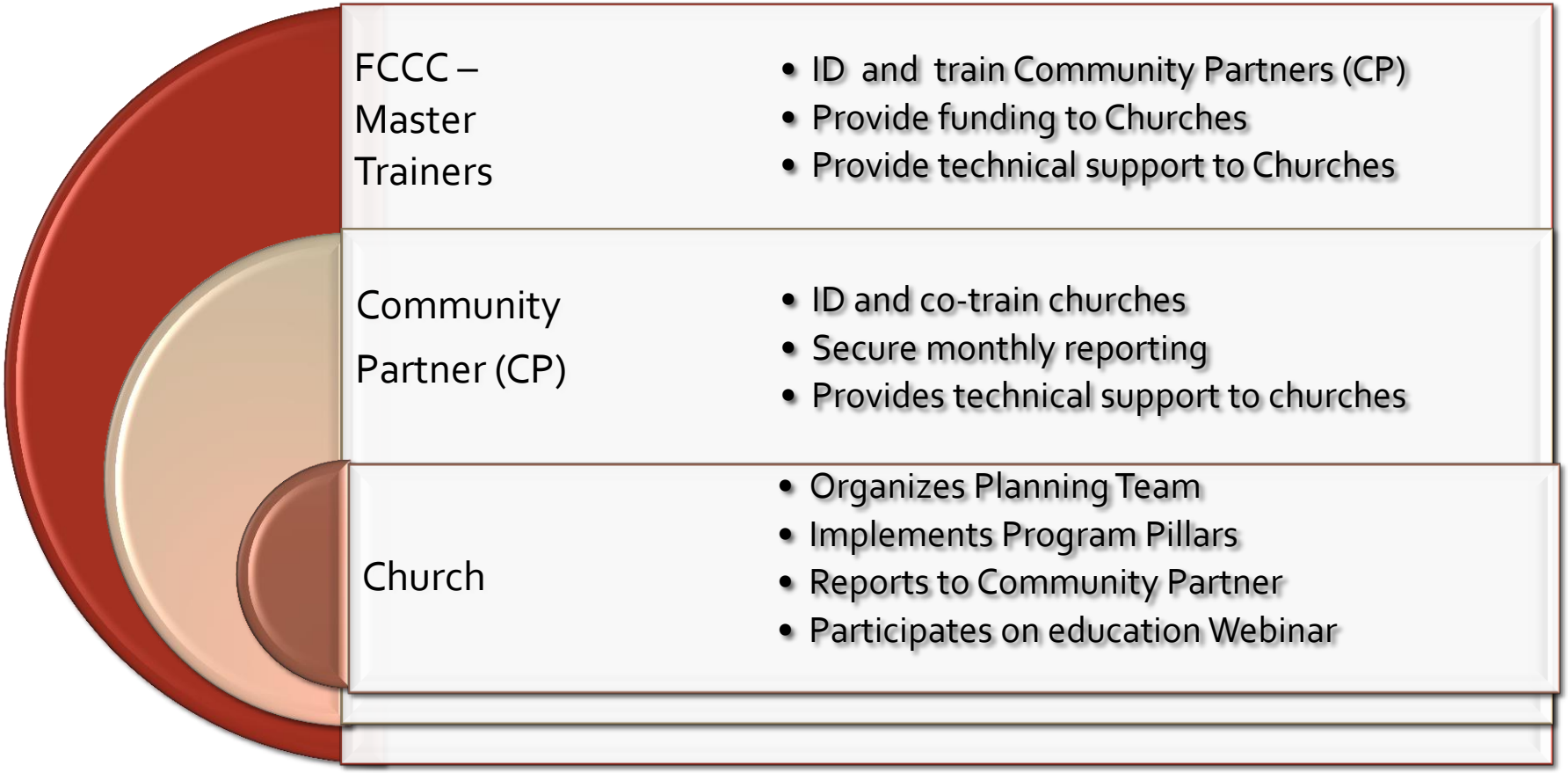
1. Disseminate the Body & Soul program in targeted counties with higher populations of African Americans
2. Evaluate and describe churches' implementation and adoption of Body & Soul

Framework



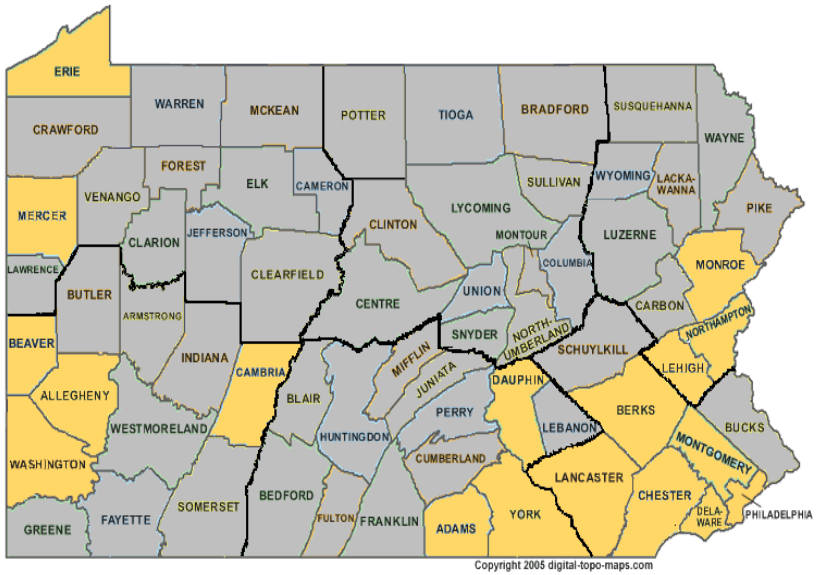
Adapted from: Carroll C, Patterson M, Wood S, Booth A, Rick J, Balain S. A conceptual framework for implementation fidelity. Imp Sci 2007; 2:40

Body and Soul Dissemination Approach



Body & Soul in Pennsylvania

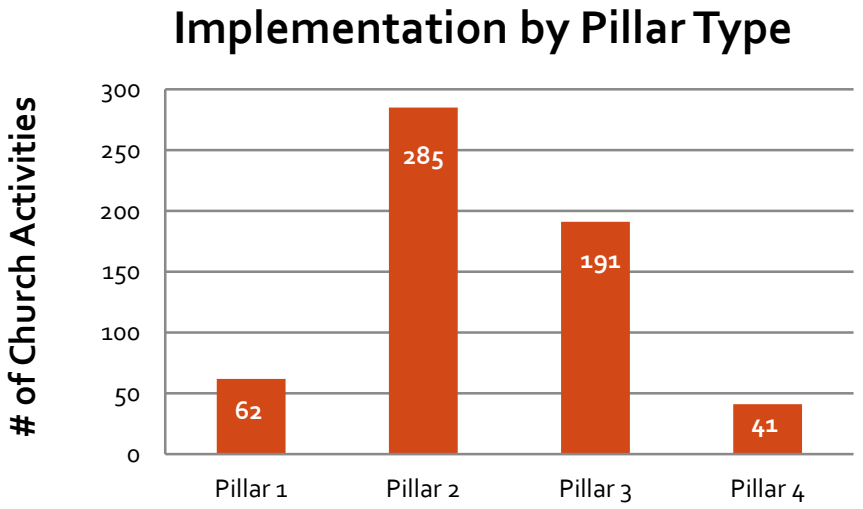
- 77 churches in 18 counties
  - Phase I - Pilot
    - 23 churches
    - Reach – 12,842
  - Phase II - Implementation
    - 49 churches
    - Reach – 23,032
  - Phase III - Implementation
    - 5 churches



Implementation Results - Number of Activities

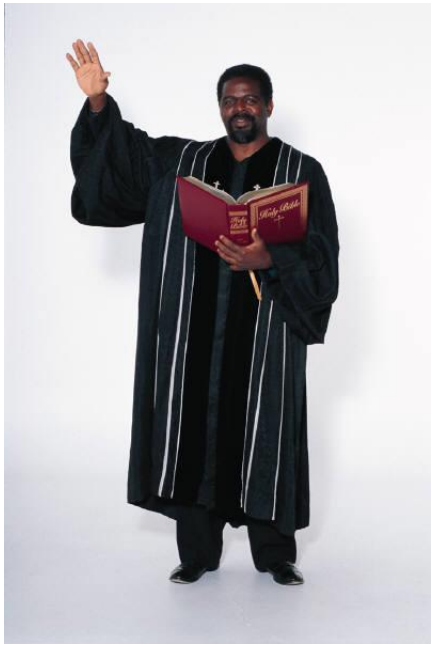
Churches conducted 579 activities related to the Body & Soul Pillars

Pillar 2 (healthy activities) was the most implemented pillar with 285 church activities, while Pillar 4 (peer counseling) was the least implemented with only 41 church activities



Implementation Results Number of Pillars

- 57% of churches implemented either two or three of the pillars
- Only 24% of churches have implemented all 4 pillars



Mixed Success

Participating churches enjoyed activities (Pillar 2) but struggled with other Pillars

Peer Counseling Pillar (Pillar 4) was difficult - existing training materials were insufficient to support & acceptability of terminology

Church coordinators were unable to fully engage church members into activities

Securing data from churches in a timely fashion was problematic

RE-AIM

- **R**each -- 77 churches
- **E**ffectiveness -- NS for F&V
- **A**dopted -- 57% 2 or 3 pillars
- **I**mplementation -- Variability
- **M**aintenance --Many churches continuing

Reducing Cancer Disparities by Engaging Stakeholders (RCaDES) Initiative

R. Myers, PhD; M. DiCarlo, MPH, MS; M. Romney, RN, JD, MPH, A. Quinn, MPH; M. Rosenthal, MD; R. Sifri, MD; L. Fleisher, MPH, PhD; D. Bellefontaine; J. Soleiman, MPA; A. Mathis

The RCaDES Initiative

Center for Health Decisions
at Jefferson

What is the RCaDES Initiative?

- A Patient Centered Outcomes Research Institute (PCORI)-Jefferson funded project to develop a "collective impact learning community" model (2015-2017)
  - Catalyze the translation of evidence-based screening interventions into practice in health systems to reduce colorectal cancer and lung cancer disparities in health systems

The RCaDES Initiative

Center for Health Decisions
at Jefferson

PASAC Roadmap

Getting Started
- Building a community
- Understanding the problem
- Strategies to address the problem – current resources & evidence-based approaches

Adaptation 101 & Patient Education Materials
- What are the issues in CRC screening in your communities?
- What is adaptation and why is it important?
- Review & discussion of patient education materials

Adaptation of Navigation
- Review of revised education materials
- Importance & methods of getting community input
- Review & discussion of navigation approach

Intervention Revisions & Organizational Adaptation
- Summary of community feedback
- What is organizational adaptation?
- Review of organizational readiness & system CHNA

Organizational Adaptation
- Discuss challenges and opportunities to implementation
- Develop recommendations for health system

Recommendations and Conference Planning
- Development of recommendations for pilot implementation
- Develop Conference Presentation

Annual Conference – Dec 2,2016

Digital Health

Digital Health Initiative

- Explosion of mobile health apps in both pediatric and adult health.
- Limited evaluation of the effectiveness of mobile medical apps on health outcomes.
- DHI takes a systematic approach to conducting research
- NSF funding – focus on technology transfer and building relationships with entrepreneurs

Accelerating the integration of effective and trustworthy mHealth interventions into patient care

Integrating Apps into Pediatric Practice

FLEISHER, FIKS, GRUVER, HALKYARD

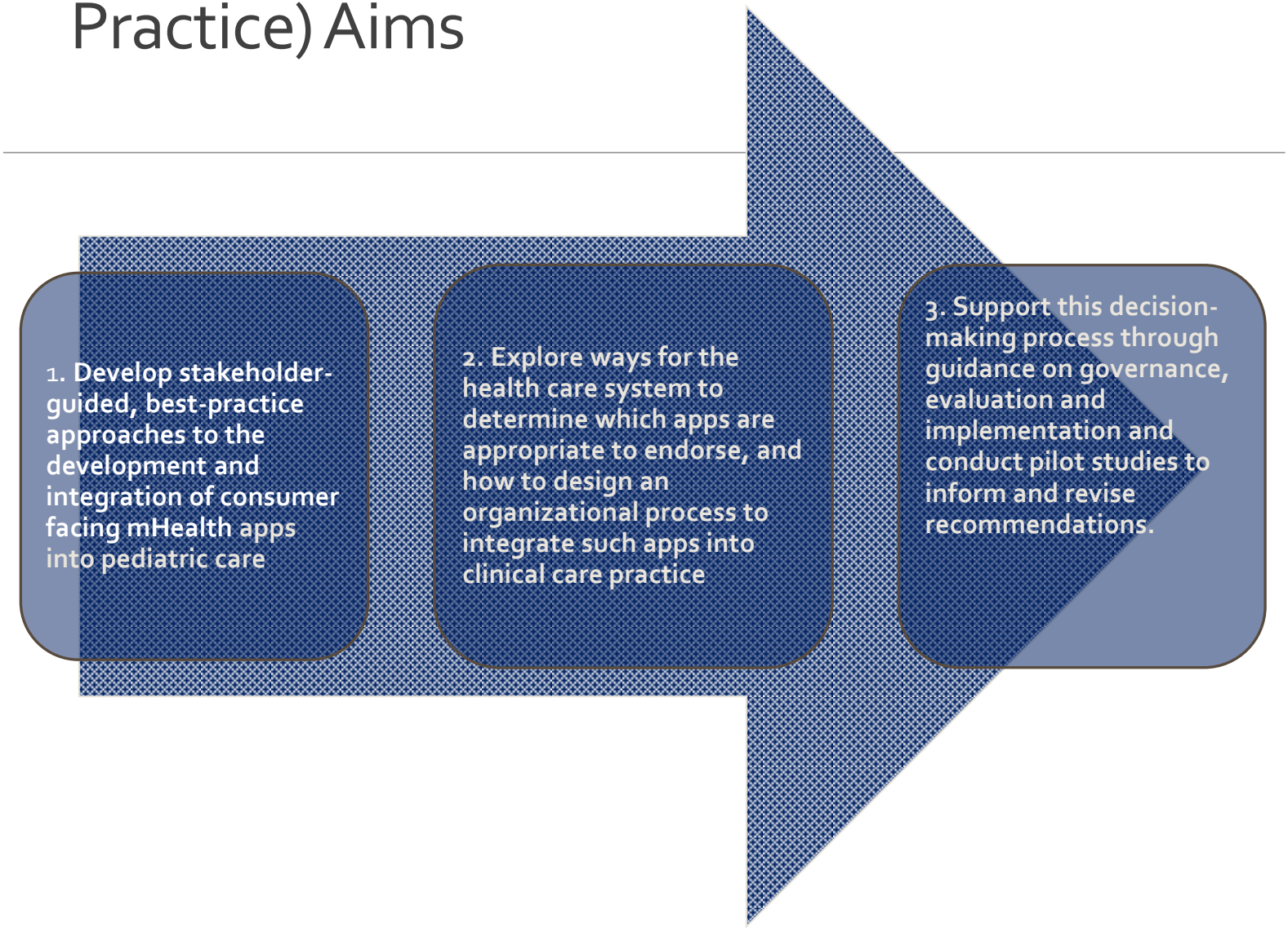
Background

Mobile apps are a helpful health management resource for many groups, with nearly 30% of adults in the US taking advantage of them.

However, many have little scientific foundation or evaluation of safety, efficacy or efficiency.

When families use digital health tools without input from their clinicians, they risk receiving **unsafe** or **ineffective** advice that may be poorly matched to their **needs.**

iAPP (Integrating Apps into Pediatric Practice) Aims



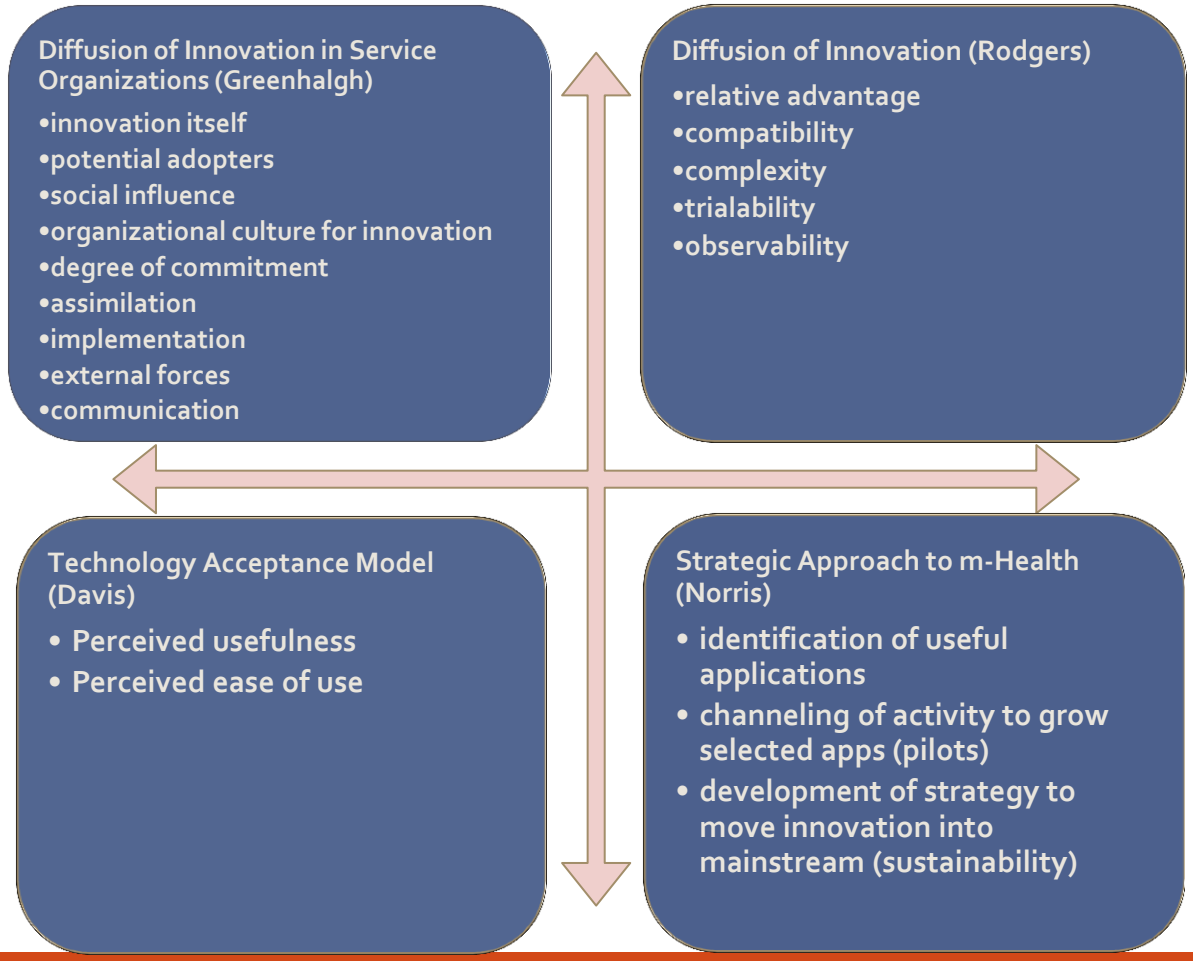
External Scan: Methods

Interviews with Pediatric Hospitals (N=7 institutions)

- Fall 2015/Winter 2016
- Identified participants through recommendations from CHOP faculty & leadership, networking at mHealth professional meetings, review of websites for consumer facing apps
- Developed interview guide based on Implementation Science frameworks
- Included an online background survey and in-person or telephone interview

Organization
Boston Children's Hospital
Sick Kids Toronto
Children's Mercy Hospital Kansas City (2)
Vanderbilt Children's Hospital
Nationwide Children's Hospital
Children's Hospital and Clinics of Minnesota
Seattle Children's Hospital

Conceptual Framework



External Scan Conclusions

No unified approach currently exists for implementing mHealth tools.

Vetting of these tools is inconsistent, generally lacking or underdeveloped in operationally developed apps.

In contrast, those developed through research are carefully evaluated, but often not disseminated.

Some had digital health policies in various stages of development and early in implementation

Policy often at odds with "innovation"

Driven by different groups and settings (business, innovation center, researchers, administrative leadership)

Primary funding – internal & foundations

mychoice: A web-enabled Application to Address Barriers to Clinical Trial Participation in African American Cancer Patients

LINDA FLEISHER AND SARAH BASS, PIS

FOX CHASE CANCER CENTER
TEMPLE HEALTH

Risk Communication TEMPLE UNIVERSITY Lab

TEMPLE UNIVERSITY
College of Public Health

Significant Formative Research

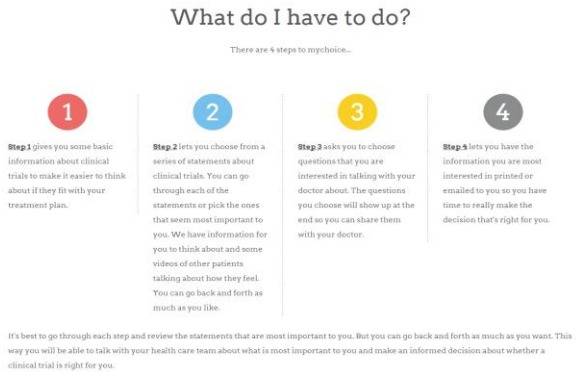
Phase 1: In-depth discussions with African American cancer patients who have and have not participated in clinical trials, to elicit barriers to and facilitators of participation and validate which are most critical to the patient population.

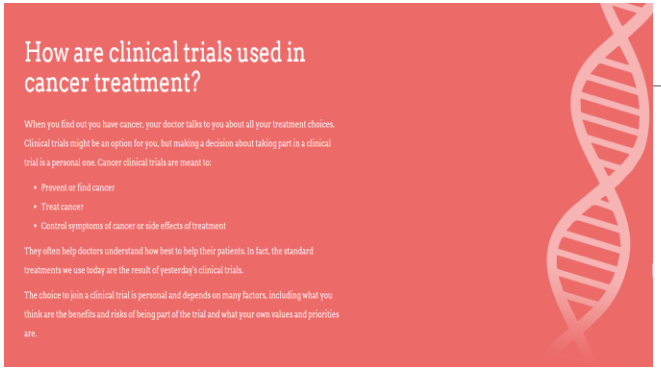
Phase 2: Develop and administer the perceptual mapping survey instrument to inform message foci of decision aid.

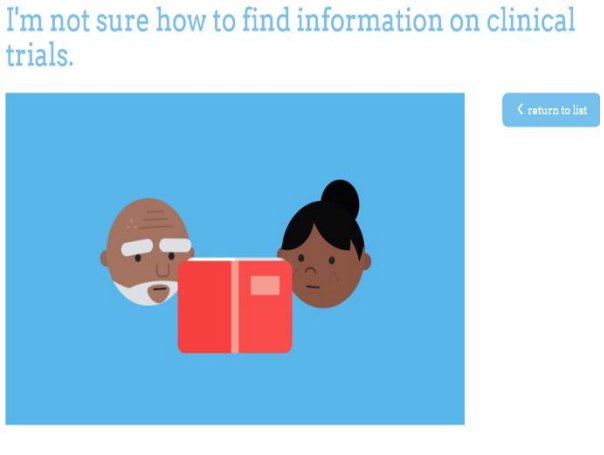
Phase 3: Develop a multi-media mobile application decision aid, and conduct message and usability testing with patients and providers.

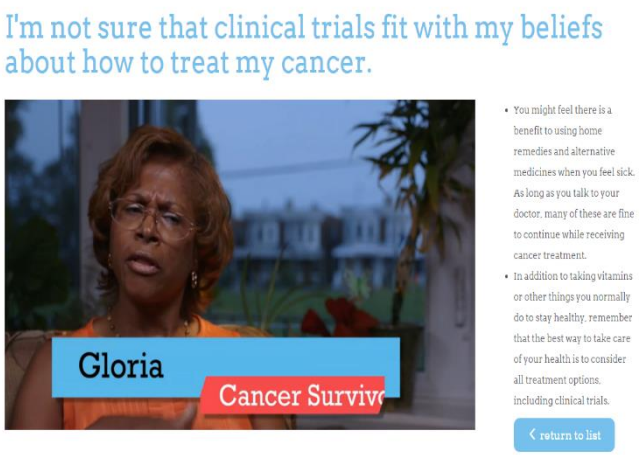
Development of mychoice mobile app

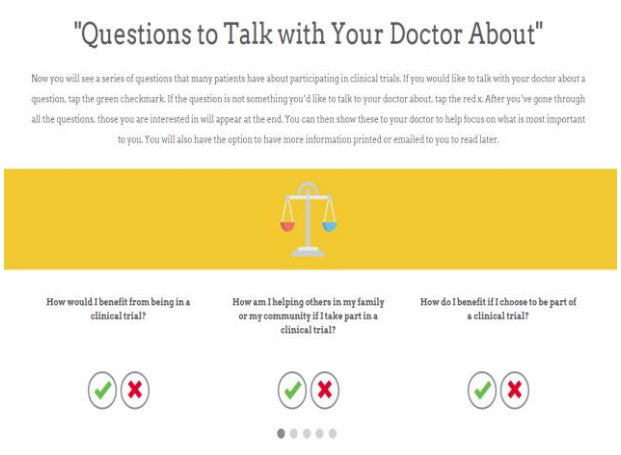
mychoice™











Fleisher & Bass, 2016

Step 2 – Concerns (six options - individualized choice)

Fleisher & Bass, 2016

Next Steps

- RCT- 18 month study at 4 cancer centers in the region
- Hybrid Type 1
  - Effectiveness – clinical trial knowledge, preparation for clinical trial discussion, patient activation, decisional conflict
  - Implementation - evaluate the organizational, patient and provider factors that influence the successful implementation of the intervention

Resources

Resources

National Cancer Institute – Implementation

https://cancercontrol.cancer.gov/IS/

Global Health – Fogarty International Center Toolkit

https://www.fic.nih.gov/About/center-global-health-studies/neuroscience-implementation-toolkit/Pages/default.aspx

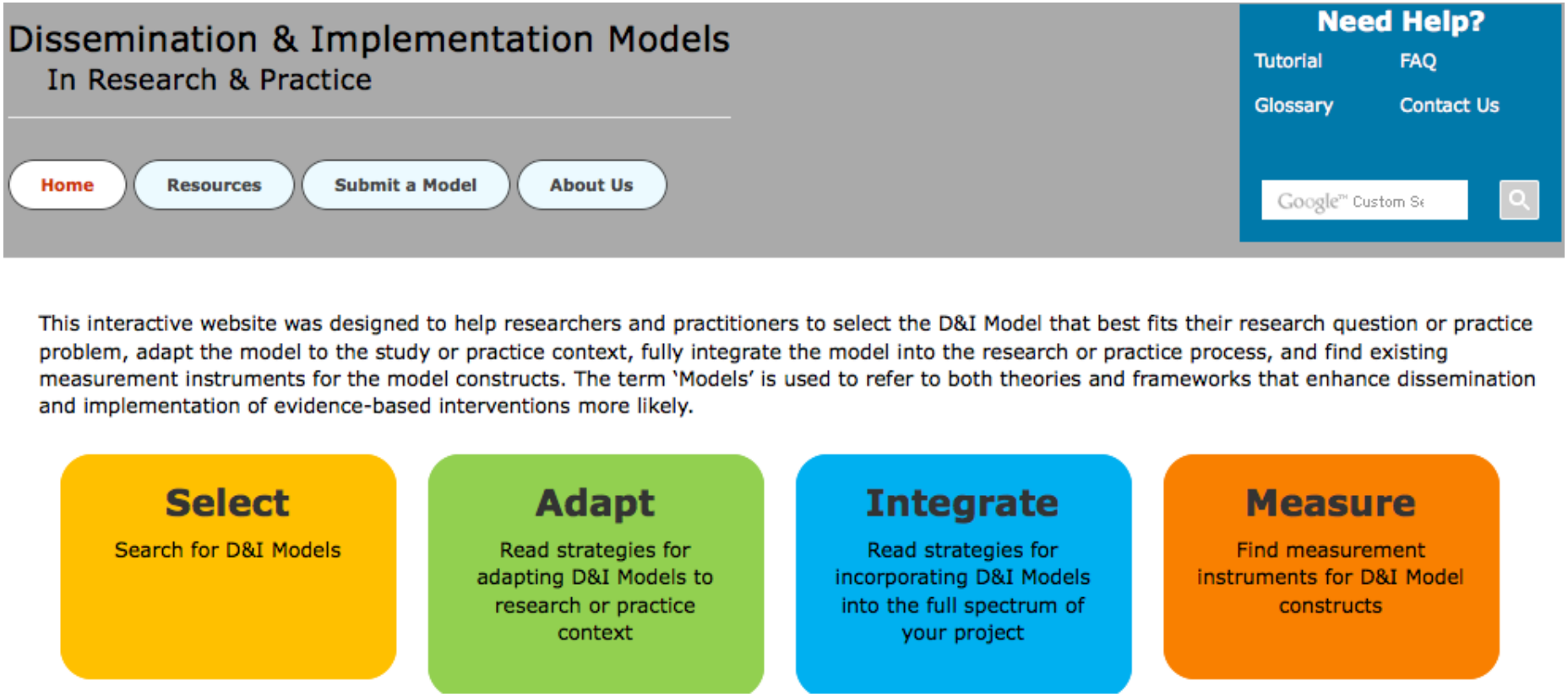
Society for Implementation Research Collaboration

https://societyforimplementationresearchcollaboration.org/what-is-sirc/

National Implementation Research Network

http://nirn.fpg.unc.edu/


http://www.cancercontrolplanet.org/
OnlineMapFinder
MyWay
Evidence-based Medici...
Cancer Control P.L.A....
Page
Safety
Tools
Plan, Link, Act, Network with Evidence-based Tools
Cancer Control P.L.A.N.E.T.
The starting point for public health professionals in comprehensive cancer control planning
Contact Us
These countries offer comprehensive cancer control resources through their P.L.A.N.E.T portals:
United States
Canada
If your country does not have a P.L.A.N.E.T. portal, consider using these international agency resources for comprehensive cancer control planning, implementation, and evaluation:
World Health Organization (WHO): Cancer control: knowledge into action
International Union Against Cancer (UICC): National cancer control planning resources
Cancer Control P.L.A.N.E.T. portals include 5 steps for developing a comprehensive cancer control program:
Step 1 Assess program priorities
Statistics for prioritizing cancer control efforts
Step 2 Identify potential partners
Contact information for program partners and research partners
Step 3 Research reviews of different intervention approaches
Recommendations for population-based intervention approaches
Recommendations on screening, counseling, and other clinical regimens
Step 4 Find research-tested intervention programs and products
Summary statements, ratings, and products from cancer prevention and control programs tested in research
Step 5 Plan and evaluate your program
Country, state, and province plans and budgets
Guidelines for developing a comprehensive cancer control plan
7:53 PM
3/6/2017



To learn more (temporary address): http://kmt-stage.kleinbuendel.com/index.aspx

Designing for D&I

PLAN FOR D&I FROM THE START

ENGAGE YOUR TARGET USERS

USE SOCIAL MARKETING APPROACHES AND LEARNINGS FROM THE DOI LITERATURE

CHOOSE MEASURES THAT MATTER IN THE REAL WORLD

CHOOSE DESIGNS THAT ALLOW YOU TO GENERATE OUTCOMES THAT INFORM REAL WORLD PERFORMANCE

PREPARE A BUSINESS CASE

MAKE IT EASY ON FUTURE ADOPTERS

Knowledge Translation Planning Template©

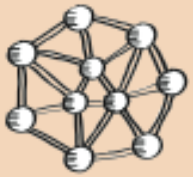
INSTRUCTIONS: This template was designed to assist with the development of Knowledge Translation (KT) plans for research but can be used to plan for non-research projects. The Knowledge Translation Planning Template is universally applicable to areas beyond health. Begin with box #1 and work through to box #13 to address the essential components of the KT planning process.

(1) Project Partners

- ☐ researchers
- ☐ consumers - patients/families
- ☐ the public
- ☐ decision makers
- ☐ private sector/industry
- ☐ research funding body
- ☐ volunteer health sector/NGO
- ☐ practioners
- ☐ other

NOTES

(2) Degree of Partner Engagement



- ☐ from idea formulation straight through
- ☐ after idea formulation & straight through
- ☐ at point of dissemination & project end
- ☐ beyond the project

Consider: Not all partners will be engaged at the same point in time. Some will be collaborators, end users or audiences, or people hired to do specific activities.

(3) Partner(s) Roles

(1) What do the partner(s) bring to the project?

(2) How will partner(s) assist with developing, implementing or evaluating the KT plan?

Action: Capture their specific roles in letters of support to funders, if requested.

▶

(4) KT Expertise on Team

- ☐ scientist(s) with KT expertise
- ☐ consultant with KT expertise
- ☐ knowledge broker/specialist
- ☐ KT supports within the organization(s)
- ☐ KT supports within partner organization(s)
- ☐ KT supports hired for specific task(s)

To download the form and learn more:
http://www.melaniebarwick.com/training.php

Funding Opportunities

There are many funding opportunities that support the conduct of rigorous, cutting-edge dissemination and implementation research at the National Cancer Institute and across the National Institutes of Health. The most prominent funding opportunity is the Trans-NIH program announcement with special receipt, referral and/or review (PAR), *Dissemination and Implementation Research in Health*. The National Cancer Institute, along with many other participating institutes and centers across the National Institutes of Health, has issued this PAR for R03, R21 and/or R01 funding mechanisms. Below, we provide additional information about this implementation science (IS) funding opportunity as well as resources for prospective IS applicants.

Apply for Grants

- Trans-NIH PAR, *Dissemination and Implementation Research in Health*
  - R01, Dissemination and Implementation Research in Health
  - R21, Dissemination and Implementation Research in Health
    - *Note*: The R21 exploratory/developmental grant mechanism supports investigation of novel scientific ideas or new model systems, tools, or technologies that have the potential for significant impact on biomedical or biobehavioral research. An R21 grant application need not have extensive background material or preliminary information. Preliminary data are not required for R21 applications; however, they may be included if available.
  - R03, Dissemination and Implementation Research in Health
    - *Note*: The R03 small grant mechanism supports discrete, well-defined projects that realistically can be completed in two years and that require limited levels of funding. Because the research project usually is limited, an R03 grant application may not contain extensive detail or discussion. Preliminary data are not required, particularly in applications proposing pilot or feasibility studies.

10 key ingredients of D&I research proposals #1-6

Proposal Ingredient	Key Question	Review Criteria
1. The care gap or quality gap	The proposal has clear evidence that a gap in quality exists?	Significant impact
2. The evidence based treatment to be implemented	Is the evidence for the program, treatment, or set of services to be implemented demonstrated?	Significance innovation
3. Conceptual model and theoretical justification	The proposal delineates a clear conceptual framework/theory/model that informed the design and variables being tested?	Approach innovation
4. Stakeholder priorities, engagement in change	Is there a clear engagement process of the stakeholders in place?	Significance impact Approach Environment
5. Setting's readiness to adopt new services/treatments/ programs	Is there clear information that reflects the settings readiness, capacity, or appetite for change, specifically around adoption of the proposed evidence-based treatment?	Impact Approach Environment
6. Implementation and strategy/process	Are the strategies to implement the intervention clearly defined, and justified conceptually?	Significance impact innovation

Proctor et al. Implementation Science 2012, 7:96

Bridging the Evidence Chasm

Thank you and Questions